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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/483,167
Filing Date: January 14, 2000
Appellant(s): BJORKLUND ET AL.

Ruben S. Bains, Reg. No. 46,532
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed on 25 July 2005 appealing from the Office action mailed on 26 October 2004.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,790,536	MAHANY et al.	8-1998
6,275,166	DEL CASTILLO et al.	8-2001
5,673,252	JOHNSON et al.	9-1997

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

A. Claims 34, 37-43, 45-48, 51-55, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mahany et al. (US 5,790,536) in view of del Castillo et al. (US 6,275,166).

Referring to Claims 34, 42, 46, 47, and 55, Mahany teaches a multi-tier system, as shown in Figs. 28A-28C, comprising: (a) host 3011 adapted to control a remote unit, such as printer 3013 or code reader 3009, through a control signal (see Col. 43, lines 27-31); (b) access points 3015 and 3017 or first-tier base stations for providing access to a hard-wired backbone local area network (LAN) 3019 and for receiving a control signal from host 3011 (see Col. 43, lines 62-67); (c) access point 3021, which is adapted to receive the control signal from access points 3015 and 3017 via frequency hopping and is understood to be a first second-tier base station because it communicates with the first-tier base stations and with peripheral LAN devices or second second-tier base stations (see Col. 37, lines 7-13; Col. 40, lines 32-35, 44-48, and 61-65; Col. 44, lines 55-63; Col. 45, lines 2-8 and 17-24; and Col. 46, lines 1-7); and (d) a plurality of second second-tier base stations, such as computer terminal 3007 and storage terminal 3031, that communicate with remote devices (e.g., printer 3013) and first second-tier base stations using a narrowband, single frequency protocol and have a short transmission range relative to that of access points 3015 and 3017 (see Col. 37, lines 14-23; Col. 40, lines 66 -67; Col. 41, lines 1-4; Col. 44, lines 13-15, 26-31, and 49-54; Col. 45, lines 50-54; and Col. 46, lines 11-14). Mahany, however, fails to expressly teach host 3011 controlling a remote unit through the first and second second-tier base stations.

In an analogous art, del Castillo teaches a radio frequency (RF) appliance control and monitoring system. As shown in Fig. 1, del Castillo's system comprises: (a) headend control

computer (HCC) 16 or a processor-based host adapted to control remote appliances/units such as heating, ventilation and air conditioning (HVAC) units 25, temperature sensors 26, motion detectors 27, door transducers 29, mini-bars 30, safes 31, and audio/video devices 32 (see Col. 4, lines 7-25 and 52-61; and Col. 5, lines 42-50); (b) a headend transceiver unit (HTU) 18 or first-tier base station communicatively coupled to HCC 16 (see Col. 4, lines 7-11, 26-31); and (c) a plurality of appliance management stations (AMSs) 12 or second-tier base stations that are wirelessly coupled to HTU 18 and are coupled to appliances 24 (see Fig. 3; Col. 4, lines 7-11 and 25-51). Per del Castillo, at least some AMSs 12 are used to control appliances and function as relay units (see Col. 4, lines 62-67 and Col. 5, lines 1-12). According to del Castillo, all AMSs 12 that communicate directly with HTU 18 are level 1 AMSs 12 (i.e., first second-tier base stations), and all AMSs 12 that communicate with HTU 18 via the level 1 AMSs 12 are level 2 AMSs 12 (i.e., second second-tier base stations), wherein the first and second second-tier AMSs 12 communicate without an intervening HTU 18 (see Col. 7, lines 56-67; Col. 8, lines 1-18 and 53-67; and Col. 9, lines 1-8). Consequently, HCC 16 transmits a control signal to remote appliance 24 via HTU 18, a first second-tier AMS 12, and a second second-tier AMS 12, wherein the second second-tier AMS 12 receives the control signal from the first second-tier AMS 12 and feeds the control signal to the designated appliance (see Fig. 6, appliance 24 as indicated by the letter "A" in the box with the dashed outline; Col. 5, lines 4-10; Col. 7, lines 56-67; and Col. 8, lines 1-18).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mahany as taught by del Castillo because a host that controls a remote unit through a first-tier base station, a first second-tier base station, and a second second-tier base station is able to control remote appliances that are beyond the

host's communications range while maintaining limited transmission power and distance to avoid governmental site licensing (see del Castillo, Col. 4, lines 62-67; Col. 5, lines 1-4; and Col. 8, lines 25-27).

Regarding claim 37, because Mahany discloses that when a plurality of second-tier base stations communicate with each other or with other remote units, either one second-tier base station becomes a dedicated "control point" or the control point function is distributed among some or all of the devices (see Col. 38, lines 33-43), it is understood that a second second-tier base station functions as a control point. Per Mahany, a control point performs the following tasks: (a) buffering data intended for a remote unit if the remote unit is asleep (see Col. 17, lines 34-39 and Col. 18, lines 43-46); and (b) indicating or announcing the presence of buffered data to the remote unit at regular, predetermined intervals until the remote unit retrieves the buffered data from the control point (see Col. 31, lines 14-18; Col. 35, lines 45-53; and Col. 41, lines 15-28). Mahany teaches that a control point periodically transmits a Request for Poll (RFP), which informs the remote units that there are messages for them in the queue (see Col. 17, lines 28-39). When sleeping remote units receive their address in the RFP, the remote units transmit a poll in order to receive the buffered message from the control point (see Figs. 7b, 20a and 20b; and Col. 19, lines 50-65). In other words, the second second-tier base station (c) receives a remote unit's poll or request and (d) provides the buffered data to the remote unit in response to receiving the request. Mahany adds that power managed remote devices employ sleep algorithms synchronized to wake for the minimum period necessary to guarantee receipt of pending message transmission (see Col. 31, lines 14-18).

Regarding claims 38 and 39, Mahany imparts that peripheral or terminal devices include a data collection device that is a bar code reader 3009 (see Fig. 28a; Col. 10, lines 34-36; and Col. 43, lines 19-25).

Regarding claims 40 and 41, Mahany's peripheral or terminal devices (i.e., "remote units") comprise a printer 3013 (see Fig. 28a; Col. 10, lines 31-36; and Col. 43, lines 27-31), a hand-held computer terminal 3007 (see Fig. 28a; Col. 9, lines 27-29; and Col. 43, lines 22-25), or a radio terminal (see Col. 63, line 31), which is understood that the radio terminal can be a pager.

Regarding claim 43, Mahany shows in Fig. 1*c* that host computer 55 and first-tier base stations 56, 57, 58, and 59 form a premises local area network (LAN) (see Col. 11, lines 39-44). Mahany further teaches that first-tier base stations, such as first-tier base station 59, can be wirelessly connected to the LAN (see Col. 11, lines 45-49). Furthermore, in Fig. 28a, Mahany imparts that hard-wired backbone LAN 3019 and access point 3015 and 3017 form a premises LAN (see Col. 43, lines 62-64).

Regarding claims 45 and 48, Mahany discloses that in an alternate configuration, a second-tier access point 3021 is connected indirectly to backbone LAN 3019 via first-tier access points 3015 and 3017 (see Col. 45, lines 17-21). Per Mahany, access point 3021 is also able to communicate with other peripheral LAN devices, such as computer terminal 3007, printer 3013, modem 3023, code reader 3009, and storage terminal 3031 (see Col. 44, lines 32-63 and Col. 45, lines 21-24). In the embodiment with access point 3021, it is understood that access point 3021 is a first second-tier base station, that computer terminal 3007 is a second second-tier base station, and that storage terminal 3031 is a third second-tier base station and is in communication with printer 3013 (see Col. 46, lines 11- 14). Mahany, however, is silent on host 3011 controlling a remote unit through the first, second, and third second-tier base stations.

As shown in Fig. 6, del Castillo's HCC 16 is able to control an appliance 24 (indicated by the letter "A" in the box with the solid outline) via HTU 18 (a first-tier base station), AMS R1 (a first second-tier base station), AMS R2 (a third second-tier base station), and AMS D (a second second-tier base station).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Mahany as taught by del Castillo because a host that controls a remote unit through a first-tier base station, a first second-tier base station, a second second-tier base station, and a third second-tier base station is able to control remote appliances that are beyond the host's communications range while maintaining limited transmission power and distance to avoid governmental site licensing (see del Castillo, Col. 4, lines 62-67; Col. 5, lines 1-4; and Col. 8, lines 25-27).

Regarding claims 51 and 52, Mahany teaches all the limitations as explained above in claims 34, 47, and 55.

Regarding claims 53, 54, and 58, Mahany teaches a binding or associating process between a control point (i.e., a second second-tier base station as explained above in claim 37) and remote units. Per Mahany, a control point begins the process by (a) transmitting a request (i.e., "associate command") to form a spontaneous LAN with a specific remote unit or with a specific type of remote unit (see Col. 37, lines 40-50). If a compatible remote unit is within range, the remote unit responds to the request, causing the binding process to begin once the control point (b) receives the remote unit's response (see Col. 37, lines 50-60). During the binding process, the control device (c) transmits access intervals of known duration on a series of four frequencies spread throughout the available frequency range (see Col. 41, lines 45-50). The access interval includes a synchronization (SYNC) message (see Col. 37, lines 27-31). Once

a control point and a remote unit are able to establish communication, the remote unit registers with the control point (see Col. 41, lines 59-62). During registration, the remote unit communicates a message containing an alias/identifier that identifies the remote unit, and the control unit assigns a local address to the remote unit (see Col. 39, lines 21-24).

B. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mahany et al. (US 5,790,536) in view of del Castillo et al. (US 6,275,166) as applied to claim 34 above, and further in view of Johnson et al. (US 5,673,252).

Mahany and del Castillo teach connecting a first-tier base station and the host through as RS-232 port (see del Castillo, Col. 4, lines 26-28) but are silent on connecting a first second-tier base station to a first-tier base station through a serial port.

In an analogous art, Johnson's multi-tier communication system includes: (a) a first-tier base station, or intermediate data terminal (IDT), that has a first radio transceiver operating in accordance with a first communication protocol and is connected to a local area network (LAN) (see Fig. 1, IDT 114; and Col. 22, lines 41-45 and 56-57); (b) a second-tier base station, or remote cell node (RCN), that comprises a second radio transceiver operating in accordance with a second communication protocol independent of the first communication protocol and is connected to the first-tier base station (see Fig. 1, RCN 112; Col. 11, lines 46-49; and Col. 18, lines 17-20); (c) a first-tier remote unit wirelessly connected to the first-tier base station (IDT) through the first radio transceiver (see Fig. 1, special and Col. 6, lines 23-28); and (d) a second-tier remote unit, or network service module (NSM), wirelessly connected to the second-tier base station (RCN) through the second radio transceiver (see Col. 5, lines 47-52). Because Johnson's multi-tier system for digital radio packet communication is a wide area communications network, it is understood that the central data terminal (CDT) is connected to a wide area network (WAN)

and that the IDTs are connected to a LAN. Johnson's second-tier remote unit (or NSM) comprises a vending machine (see Col. 10, lines 6-9). Because Johnson imparts that the IDT and RCN can be connected via cable (see Col. 18, lines 65-67), it is understood that the RCN is connected to the IDT through a serial port.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Mahany and del Castillo's multi-tier system as taught by Johnson because connecting the first-tier and second-tier base station through a serial port eliminates transmission errors cause by radio frequency (RF) interference, thereby improving system reliability.

(10) Response to Argument

In response to the appellant's argument on pages 8-14 of the appeal brief that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Mahany teaches a system, as shown in Fig. 28*a*, wherein host computer 3011 is able send data for display on terminal 3007 or for printing on a printer 3013 (see Col. 43, lines 27-31); thus, Mahany's disclosure that host computer 3011 is able to control a remote unit contradicts the appellant's assertions that Mahany teaches away from the concept of host-based control (see pages 12-13 of the appeal brief). Mahany also teaches that a multi-hop system is advantageous because a multi-hop system increases the premises LAN's coverage without extending backbone LAN 3019 (see Col. 43, lines 62-67 and Col. 44, lines 1-15).

Mahany, however, omits to expressly teach host 3011 controlling a remote unit via a multi-hop system comprising a first second-tier base station and a second second-tier base station. On the other hand, del Castillo teaches a radio frequency (RF) appliance control and monitoring system, as shown in Fig. 1, comprising: (a) HCC 16 or a processor-based host adapted to control remote appliances/units such as heating, HVAC units 25, temperature sensors 26, motion detectors 27, door transducers 29, mini-bars 30, safes 31, and audio/video devices 32 (see Col. 4, lines 7-25 and 52-61; and Col. 5, lines 42-50); (b) HTU 18 or a first-tier base station communicatively coupled to HCC 16 (see Col. 4, lines 7-11, 26-31); and (c) a plurality of AMSs 12 or second-tier base stations that are wirelessly coupled to HTU 18 and are coupled to appliances 24 (see Fig. 3; Col. 4, lines 7-11 and 25-51). Per del Castillo, at least some AMSs 12 are used to control appliances and function as relay units (see Col. 4, lines 62-67 and Col. 5, lines 1-12). According to del Castillo, all AMSs 12 that communicate directly with HTU 18 are level 1 AMSs 12 (i.e., first second-tier base stations), and all AMSs 12 that communicate with HTU 18 via the level 1 AMSs 12 are level 2 AMSs 12 (i.e., second second-tier base stations), wherein the first and second second-tier AMSs 12 communicate without an intervening HTU 18 (see Col. 7, lines 56-67; Col. 8, lines 1-18 and 53-67; and Col. 9, lines 1-8). Consequently, HCC 16 transmits a control signal to remote appliance 24 via HTU 18, a first second-tier AMS 12, and a second second-tier AMS 12, wherein the second second-tier AMS 12 receives the control signal from the first second-tier AMS 12 and feeds the control signal to the designated appliance (see Fig. 6, appliance 24 as indicated by the letter "A" in the box with the dashed outline; Col. 5, lines 4-10; Col. 7, lines 56-67; and Col. 8, lines 1-18). Contrary to the appellant's assertion that "there is no motivation to combine the references in the manner suggested by the Examiner" (see page 12 of the appeal brief), del Castillo teaches that a multi-hop system provides advantages such as

providing extended communication coverage (see del Castillo, Col. 4, lines 62-67; Col. 5, lines 1-4; and Col. 8, lines 25-27); thus, del Castillo does provide motivation to modify Mahany's system such that Mahany's host 3011 controls a remote unit through the network's first and second second-tier base stations.

In response to the argument that "the Examiner's suggestion of extending the transmission range of the host by superimposing the sequential connection of AMSs 12 on top of the ***Mahany*** network is fundamentally inconsistent" (see page 14 of the appeal brief), the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). In this case, Mahany teaches a host computer that controls a remote unit via first-tier base stations, whereas del Castillo teaches a host computer that control a remote unit via a first-tier base station, a first second-tier base station, and a second second-tier base station.

On pages 14-18, the appellant argues that there is no reasonable expectation of success. Mahany and Del Castillo, however, provide reasonable expectation of success. As explained in the previous paragraph, Mahany teaches that host computer 3011 is able send data for printing on a printer 3013 and that a multi-hop system is advantageous because a multi-hop system increases the premises LAN's coverage without physically extending backbone LAN 3019. Likewise, as explained in the previous paragraph, del Castillo teaches HCC 16 controlling remote appliance 24 by transmitting a control signal via first-tier base station HTU 18 to a first second-tier AMS 12, which relays the control signal to a second second-tier AMS 12, wherein

the second second-tier AMS 12 receives the control signal from the first second-tier AMS 12 and feeds the control signal to the designated appliance. Hence, there is reasonable expectation of success when Mahany's system is modified such that host 3011 controls a remote unit via a first second second-tier and a second second-tier base stations.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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